



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,460	09/15/2003	Luc Minnebo	GN02103	1777
21013 7590 04/30/2007 AGFA CORPORATION PATENT DEPARTMENT 200 BALLARDVALE STREET WILMINGTON, MA 01887			EXAMINER VO, QUANG N	
			ART UNIT 2625	PAPER NUMBER
			MAIL DATE 04/30/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/662,460	<b>Applicant(s)</b> MINNEBO ET AL.	
	<b>Examiner</b> Quang N. Vo	<b>Art Unit</b> 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/15/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-19 are rejected under 35 U.S.C. 102(e) as being anticipated by He et al. (He) (US Patent 7,031,025).

With regard to claim 1, He discloses a method for frequency modulation halftoning using halftone dots in which at least one halftone dot consists of a cluster of adjacent pixels located on a pixel grid, characterized in that the cluster of adjacent pixels can be positioned at any arbitrary position of the pixel grid (column 2, lines 50-60 and column 3, lines 28-36).

With regard to claim 2, He discloses wherein said frequency modulation halftoning method is based on the error diffusion algorithm (column 3, lines 12-15).

With regard to claim 3, He discloses wherein for at least one pixel location a quantization set is determined wherein for at least one quantization value a cluster of at least two pixels is set (column 6, lines 47-52).

With regard to claim 4, He discloses to convert an image consisting of input pixels into an output image, the method comprising the steps of: determining a modified

Art Unit: 2625

pixel that is based upon an input pixel value and a quantization set for the modified pixel value consisting of available quantization values, each quantization value corresponding to an available output pixel value combination of a cluster of pixels, said output pixel value combination resulting in a density value change in an output image (column 6, lines 42-52); selecting a quantization value out of said quantization set based upon said modified pixel value (column 6, lines 47-50); calculating an error value that depends on the modified pixel value and the selected quantization value (column 6, lines 47-50); modifying at least one pixel by adding a fraction of the calculated error; wherein the method takes into account the density value change of an area in the output image corresponding to more than one pixel (column 7, lines 4-15).

With regard to claim 5, He discloses wherein said cluster comprises at least two pixels (column 7, lines 45-47).

With regard to claim 6, He discloses wherein the pixels corresponding to the area in the output image coincide with the pixels of said cluster (column 7, lines 16-28).

With regard to claim 7, He discloses wherein said density value changes are taken into account in determining said available calculated quantization values of said quantization set for said pixel (column 6, lines 42-50).

With regard to claim 8, He discloses wherein said density value changes are taken into account in determining said modified pixel value for said pixel (column 6, lines 42-50).

With regard to claim 9, He discloses wherein the clusters of pixels are unequal in size for at least two possible quantization values (column 7, lines 16-28).

With regard to claim 10, He discloses wherein the cluster size is adjusted depending on the input pixel value (column 2, lines 31-34).

With regard to claim 11, He discloses wherein the cluster size is adjusted depending on the local contrast of the pixels surrounding the input pixel (column 1, line 65 - column 2, line 1).

With regard to claim 12, He discloses wherein said method for error diffusion halftoning further comprises a halftone dot distribution alteration step in low and high intensity image regions (column 3, lines 5-17).

With regard to claim 13, He discloses wherein the method for error diffusion halftoning is a multilevel halftoning method (column 5, lines 54-55).

With regard to claim 14, He discloses wherein the output value of the pixel is set to the corresponding minimum or maximum output value if the input pixel value is the minimum or maximum possible input value (column 6, lines 21-40).

With regard to claim 15, He discloses wherein at least one of the color separated images is halftoned using a method according to claim 1 (column 5, lines 9-10, lines 18-20). Here, different kind of printers using different ink colors for printing of dots by using the halftoning method of He.

With regard to claim 16, He discloses to convert an image comprising plural separated images representing input pixels into an output image, the method comprising the steps of: determining a modified pixel that is based upon an input pixel of a first separated image and a quantization set for said modified pixel consisting of available quantization values, each quantization value corresponding to an available

output pixel value combination of a cluster of output pixels, said output pixel value combination resulting in a density value change in an output image (column 6, lines 42-52), selecting a quantization value out of said quantization set based upon said modified pixel value (column 6, lines 47-50), calculating an error value that depends on the modified pixel value and the selected quantization value (column 6, lines 47-50), modifying at least one pixel by adding a fraction of the calculated error, wherein the method takes into account the density value change of an area in the output image corresponding to at least one pixel in a second separated image (column 7, lines 4-15).

With regard to claim 17, He discloses wherein the overlap between halftone dots in different separated images is taken into account (column 8, line 65 – column 9, line 18).

With regard to claim 18, He discloses in which the plural separated images represent plural color separations (column 5, lines 6-20). Here, He also discloses a color printer for the invention.

With regard to claim 19, He discloses in which the plural separated images represent plural color separations (column 5, lines 6-20).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang N. Vo whose telephone number is 5712701121. The examiner can normally be reached on 7:30AM-5:00PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler M. Lamb can be reached on 5712727406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

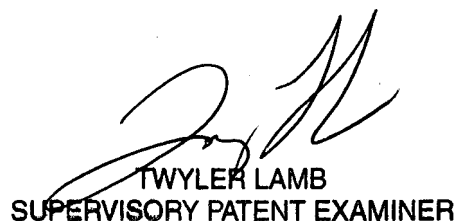
Art Unit: 2625

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Quang N. Vo  
Patent Examiner

4/20/07



TWYLER LAMB  
SUPERVISORY PATENT EXAMINER